



Coffee color analysis can help you achieve consistency in your roasts, resulting in a better-tasting product. Image Source: Flickr user Dino Quinzani

One of my friends owns a chain of coffee shops that are renowned for hand-roasting their own light coffee blends. For years, he used the same roaster to give his light coffee beans a perfect soft caramel color. To get this particular hue, he had to time his roast down to the second, achieving a consistent batch each day. But as his business grew, he purchased a set of new, more advanced coffee roasters and quickly found that his old roasting times no longer apply; his new roasters tend to overheat the beans, resulting in much darker coffee than he prefers. To correct for this, [he turned to spectrophotometry](#) for coffee color analysis, ensuring that all of his roasts meet his—and his customers’—high standards to help his business flourish.

Using a spectrophotometer to measure the color of your light coffee allows you to [achieve consistency in your beans](#) and accurately calibrate your roasting equipment to produce coffees of the highest quality. Both of these factors result in better-tasting coffee and more satisfied customers.



Without coffee color analysis, it can be difficult to determine whether your light roast beans are too light or too dark. Image Source: Flickr user David Joyce

### Light Roasts Are a Sign of Complex Flavors

When a customer buys a package of light roast coffee beans or purchases a cup of coffee made from those beans, they expect a certain flavor and color profile. Generally, light roast coffee tastes more complex than darker roasts, with strong fruit and floral flavors.<sup>1</sup> If a roaster leaves the beans over the heat for even a few minutes too long, these fruity and floral notes will begin to disappear, resulting in a darker coffee that tastes richer and less complex, with even some hint of bitterness.

This is why coffee color analysis is perhaps more vital for lighter roasts than for any other coffee style. While it's still important to have a consistent roast no matter how dark you make it, a light coffee roast often has more delicate flavors that you'll need to protect during this process—you can't over-roast these beans for even a moment too long without risking a bitter aftertaste.

Unfortunately, our eyes often have trouble [detecting the subtle difference](#) between a light roast bean and one that is veering into a medium or dark roast range. If for instance, you look at [HunterLab's Coffee Color Index](#) (HCCI), you'll see that light roasts range from 21.8 to 12.7 on the scale. Although you might be able to clearly see the difference between a very light roast (21.8) and a medium-light roast (12.7), the difference between more subtle shade changes will be less obvious. A light roast (18.8) and a moderately light roast (15.7) could look almost identical to the naked eye, even though one tastes more bitter and less fruity. A spectrophotometer can help you identify these subtle shade changes in your beans, leading to more refined flavors and far more precision than you could achieve by estimating the color yourself.

### Coffee Color Analysis Helps You Calibrate Roasters

The most important tool in a light coffee roaster's arsenal is a roaster that gives every bean a touch of golden caramel without taking the pigment too far. The problem is that coffee roasters vary significantly in quality and even the heat source itself could change the way that each roaster toasts the beans.<sup>2</sup> For example, if your gas heat is set lower on one roaster than it is on another, they'll produce two completely different colored roasts despite having identical roasting times.

A spectrophotometer can help you calibrate your roaster and heat source by giving you an accurate measurement of your [ideal bean color](#) as a baseline. First, you can use coffee color analysis on beans roasted by one piece of equipment, noting how long it took the beans to reach that ideal color and the steps you had to take to achieve it. From here, you can follow these same steps on your second roaster or on any new roasters that you purchase. How does the color compare to your ideal first batch? If they're not the same, then it's a sign that your second roaster either differs in quality from

your first or that your heat source is too strong or too weak, depending on the shade of the roast. Using this data, you can customize your roasting technique for every piece of equipment you use, ensuring that all of your coffee beans are exactly the same color. This is an especially useful tool for medium and large-scale roasting companies working with multiple pieces of equipment.



Coffee color analysis is more accurate when you grind the beans rather than trying to measure the color of whole beans. Image Source: Flickr user Marco Verch

#### The Benefits of a Coffee-Specific Spectrophotometer

In order to perform an accurate light coffee color analysis, you'll need to use a spectrophotometer that's capable of measuring solid products. Coffee beans can be difficult to measure in part because they're not always a consistent shape and they have many cracks and rounded edges that can pose significant color measurement challenges. HunterLab's [ColorFlex EZ Coffee spectrophotometer](#) solves this problem by measuring the ground or powdered versions of the beans rather than the whole bean itself. As a result, you get a more accurate color reading throughout the roasting process and correctly classify your coffees according to [your chosen coffee color scale](#), including HCCI, SCAA #, and SCAA Roast Classification.

To use this tool, simply remove a small sample of beans from the roaster, then grind them before placing them on the spectrophotometer. Within minutes, you'll get [an accurate reading](#) based on HunterLab's own proprietary coffee color scale, specifically designed for coffee roasters. This is one of the only spectrophotometers on the market that's designed for the unique needs of the coffee industry, in particular, making it the best choice for roasting companies or coffee chains.

#### HunterLab Innovation

HunterLab has been a pioneer in color measurement for over 60 years. Today, we offer [the most sophisticated instruments](#) on the market for analyzing coffee color, allowing roasters to achieve the highest possible quality. With these tools, can ensure that your light roasts taste as complex and

refined as possible to meet the expectations of even the most discerning customers. [Contact us](#) to learn more about our innovative line-up of spectrophotometers and let us help you select the right instrument for your needs.

1. "Light Roast vs. Dark Roast", October 7, 2016, <https://redroostercoffee.com/learn/light-roast-vs-dark-roast>
2. "Do Not Get Burned When Buying a Coffee Roaster", March 7, 2016, <https://coffeecourses.com/buying-a-coffee-roaster-here-are-few-considerations-so-you-do-not-get-burned/>